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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,393	10/14/2003	Mark E. Seader	FWF Camshaft US Cont	6486

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EXAMINER

CHANG, CHING

ART UNIT PAPER NUMBER

3748

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/686,393	SEADER ET AL.	
	Examiner	Art Unit	
	Ching Chang	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) (See Office action) is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>04/14/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

This Office acknowledges the Preliminary Amendment filed on October 14, 2003.

Claims 16-25 are cancelled as requested.

Drawings

1. The drawings are objected to because:

- In Fig. 1, the hollow camshaft is referred by " 12 ", but is also referred by " 19 " in Figs. 2-3.
- It is unclear in Fig. 3 that " the aperture is outside the area of significant gradient ", as indicated on Page 13 of the Specification, when compared with Figure 4.
- The label " Fig. 4 " in Fig. 4 is missing.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

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- " a camshaft lubrication supply duct (18) " in Page 12 appears to be -- a lubrication supply duct (18) --.
- The limitation added in the preliminary amendment of " significant " before " lubricant pressure gradient " on Page 13 does not appear to be supported by the originally filed disclosure, moreover, the scope of such the recitation is unclear.
- " (30) " after " the first cam surfaceaperture " on Page 14 appears to be -
- (28) --.
- " (28) " after " the second cam surfaceaperture " on Page 14 appears to be -- (31) --.

Appropriate corrections are required.

Claim Objections

3. Claims 3-12, 13/4, 13/6, 13/7, 14/13/4, 14/13/6, 14/13/7, 15/13/4, 15/13/6, and 15/13/7 are objected to because of the following informalities:

- " first " in claim 3 appears to be -- second --.
- " first " in line 3 of claim 4 appears to be -- second --.

Appropriate corrections are required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. ***Claims 1-3, 13/1, 14/13/1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magnan (US Patent No. 5,186,129) in view of Tokuyama et al. (US Patent No. 5,027,762).***

Magnan discloses a camshaft (21), comprising: a plurality of bearing means (16A-16D), wherein each of said bearing means has a corresponding lubrication supply conduit (26); a hollow camshaft (21) rotatably journalled in said plurality of bearing means; and a plurality of camshaft lubrication supply ducts (28), wherein each said camshaft lubrication supply duct traverses between a journal surface (18) of said hollow camshaft and an interior surface (23) of said hollow camshaft, and wherein each said camshaft lubrication supply duct rotatably aligns with said corresponding lubrication supply conduit, whereby lubricant transfers from said corresponding lubrication supply conduit to interior of said hollow camshaft; a first cam lobe (24A) having a cam surface, wherein said first cam lobe has a location on said hollow camshaft adjacent to said journal surface on said hollow camshaft; and further comprising a first cam surface lubrication supply duct (36) traversing said cam surface of said first cam lobe and said interior surface of said hollow camshaft; and further comprising a second cam lobe

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(24A) having a cam surface, wherein said second cam lobe has a location on said hollow camshaft adjacent to said journal surface on said hollow camshaft; further comprising a second cam surface lubrication supply duct (36) traversing said cam surface of said second cam lobe and said interior surface of said hollow camshaft; and further comprising: a block having a least one cylinder; a reciprocal means (piston) slidably engaged to the surface of said cylinder; a reciprocal movement to rotational movement conversion element (crankshaft) rotatably responsive to said reciprocal means and rotatably journaled in bearings (14); a cylinder head coupled to said block (See Fig. 1); at least two conduits communicating with each of said at least one cylinder; at least one valve coupled to each of said at least two conduits, wherein said at least one valve is operationally responsive to said cam surface of said cam lobe of said hollow camshaft; wherein said engine comprises an automobile engine;

Magnan discloses the invention, however, fails to disclose a significant pressure gradient being built up in the interior of said hollow camshaft.

The patent to Tokuyama on the other hand, teaches that it is conventional in the art of a lubrication system for multi-cylinder engine, to utilize pressure regulating means such as orifices (124) to regulate the pressure of oil in the camshaft journal (108B, 107B).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the oil pressure means as taught by Tokuyama in the Magnan device, since the use thereof would provide an improved camshaft lubrication system.

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6. ***Claim 14/13/1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Magnan in view of Tokuyama et al. (as applied to claim 13/1), further in view of Guidoboni et al. (US Patent No. 4,463,566).***

The modified Magnan discloses the invention, however, fails to disclose the said lubricated camshaft being used in an aircraft engine.

The patent to Guidoboni on the other hand, teaches that it is conventional in the art of aircraft, to utilize an aircraft engine (101) having a camshaft (37).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the aircraft engine as taught by Guidoboni with the modified Magnan device, since the use thereof would provide an improved aircraft engine.

Allowable Subject Matter

7. Claims 4-15 (except claims 13/1, 14/13/1, and 15/13/1) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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- Kobayashi (US Patent NO. 6,302,071).
- Uchida (US Patent No. 6,035,817).
- Ozeki et al. (US Patent No. 6,263,844).
- Beier et al. (US Patent No. 5,501,121).
- Fujita (US Patent No. 4,840,149).
- Saito (US Patent No. 5,161,495).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (703)306-3478. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703)308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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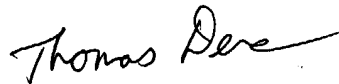
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Patent Examiner



Ching Chang



THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700